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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/488,129	01/20/2000	Patrick W. Mullen	1571.1144001	3992

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EXAMINER

CHEVALIER, ALICIA ANN

ART UNIT	PAPER NUMBER
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1772

DATE MAILED: 10/15/2002

16

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/488,129

Applicant(s)

MULLEN ET AL.

Examiner

Alicia Chevalier

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6, 11-15, 18, 22-27 and 29-52 is/are pending in the application.
- 4a) Of the above claim(s) 34-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 11-15, 18, 22-27, 29-33 and 44-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **RESPONSE TO AMENDMENT**

1. Presently claims 1-6, 11-15, 18, 22-27, and 29-52 are pending. Applicant's representative was correct in the fact that there were originally 48 claims filed. Appropriate measures have been taken to correct this error. Furthermore, the restriction requirement and Applicant's election of Group I, the article claims, are still maintained, however it is noted that the article claims should have included claims 44-48. Since claims 44-48 were not addressed in the previous office action this Office Action is non-final.

Therefore claims 1-6, 11-15, 18, 22-27, and 29-52 are currently pending and claims 34-43 are withdrawn from consideration due to the restriction/election requirement.

### ***WITHDRAWN REJECTIONS***

2. The 35 U.S.C. §112 rejections of record in paper #13, page 2, paragraph #3 have been withdrawn due to Applicant's amendment in paper #15.

3. The 35 U.S.C. §102 rejections of record in paper #13, pages 3-4, paragraphs #5 and #6 have been withdrawn due to Applicant's amendment in paper #15.

4. The 35 U.S.C. §102/103 rejections of record in paper #13, pages 4-5, paragraphs #7 and #8 have been withdrawn due to Applicant's amendment in paper #15.

5. The 35 U.S.C. §103 rejections of record in paper #13, pages 5-8, paragraphs #10-14 have been withdrawn due to Applicant's amendment in paper #15.

***NEW REJECTIONS***

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 102***

7. Claims 1-2, 5, 11-13, 18, and 24-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Nilsen et al. (5,657,162).

Nilsen discloses a retroreflective article comprising a transparent top, retroreflecting prisms, a transparent adhesive, a transparent film, retroreflecting prisms, an opaque white adhesive, and a transparent substrate (figure 5). Both layers of retroreflecting prisms are at least partially cover with an optical metal coating such as silver or aluminum (col. 4, lines 35-40). The adhesive layers may either be transparent or colored (col. 2, lines 51-56). The prisms have cube corner formation (col. 2, lines 60-61) and comprise various thermoplastic and thermoset polymers (col. 3, lines 7-19).

The term "breakable" is considered to be equivalent to "capable of." It has been held that the recitation that an element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform.

8. Claims 44, 46 and 48 are rejected under 35 U.S.C. 102(e) as being anticipated by Fellows et al. (6,050,691).

Fellows discloses a retroreflective cube-corner article having randomly oriented cube-corner elements (chips) dispersed on a substrate (figure 3). The cube-corner elements may be of different sizes, different geometries, and different central axis heights (col. 6, lines 30-49). The

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cube-corner optical faces typically have a reflective coating thereon, such as silver or aluminum. The faces may also comprise transparent colorants to impart color to the inventive sheeting (col. 7, lines 24-33).

9. Claims 50-52 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones (5,182,663).

Jones discloses a liquid crystal display comprising a first electrode layer, an electrooptical element, a second electrode and a retroreflective sheet (col. 5, line 63 through col. 6, line 24 and figure 5b). The retroreflective sheet is of cube corner type which may comprise a layer of aluminum or silver on the opened faces.

***Claim Rejections - 35 USC § 102/103***

10. Claims 3 and 4 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nilsen et al. (5,657,162).

Although Nilsen does not explicitly teach the limitations the index of refraction is in the range of between about 1.1 and 1.3, it is reasonable to presume that said limitations are inherent to the invention. Support for said presumption is found in the use of similar materials (i.e. silver or aluminum) and in the similar production steps (i.e. vacuum deposition) used to produce the retroreflective article. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 594. In the alternative, the claimed index of refraction would obviously have been provided by the process disclosed by Nilsen. Note *In re Best*, 195 USPQ 433, footnote 4 (CCPA 1977) as to the providing of this rejection under 35 USC 103 in addition to the rejection made above under 35 USC 102.

***Claim Rejections - 35 USC § 103***

11. Claims 1-5, 11, 12, 14, 15, 18, 22-27, 30-33, 44, 45, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stump et al. (5,835,271) in view of Nilsen et al. (5,657,162).

Stump discloses an encased retroreflective elements which can be divided into a plurality of retroreflector pieces, which are then mixed with a clear thermoplastic resin and extruded to form an extruded retroreflective member (col. 2, lines 54-58). The retroreflector comprises a first transparent film, a first layer of transparent microspheres, a reflecting layer, an adhesive , a second reflecting layer, a second layer of transparent microspheres, and a second transparent film (col. 4, lines 34-51 and figure 1).

The retroreflective microspheres layer can also be of the cube-corner sheet type (col. 5, lines 16-19) of the kind disclosed in McGrath pat. no. 4,025,159 which is incorporated by reference, which further incorporated by reference Weber pat. no. 3,140,340. McGrath discloses a cube corner retroreflective sheet having patterns of no open-faced cube-corner surfaces (McGrath '159 figures 7 and 8). Weber discloses that the cube corner reflective sheeting can be made of a variety of thermoplastic and thermoset polymers (Weber '340 col. 4, lines 55-61).

The reflecting layer maybe either aluminum or silver (col. 5, lines 47-49).

The retroreflectors are broken into a plurality of pieces and randomly dispersed into a thermoplastic matrix (col. 6, lines 65-67). As seen in figure 10 the thermoplastic matrix with pieces of retroreflectors is disposed on a substrate and covered by a transparent top coat.

Stump discloses all the limitations of the instant claimed invention except which side the reflecting layer would be on when using a retroreflective cube corner sheeting.

Nilsen discloses a retroreflective article comprising retroreflecting cube corner prisms with a metal optical layer over the faces of the cube corners (see the figures).

It would have been obvious to one of ordinary skill in the art at the time of the invention to put the metal optical reflecting layer of Stump on the surfaces of the cube corner sheet as taught by Nilsen because it would increase the reflective properties of the reflective cube corner surfaces.

Although Stump does not explicitly teach the limitations the index of refraction is in the range of between about 1.1 and 1.3, it is reasonable to presume that said limitations are inherent to the invention. Support for said presumption is found in the use of similar materials (i.e. silver or aluminum) used to produce the retroreflective article. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald*, 205 USPQ 594.

Stump does not disclose the exact length of the chips/pieces. The exact length of the pieces is deemed to be a cause effective variable with regard to the size of the extruder. It would have been obvious to one having ordinary skill in the art to have determined the optimum value of a cause effective variable such length of the pieces through routine experimentation in the absence of a showing of criticality in the claimed length. *In re Boesch*, 205 USPQ 215 (CCPA 1980), *In re Woodruff*, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). One of ordinary skill would have been motivated to change the length of the pieces to accommodate the extruder openings.

Stump discloses all the limitations of the instant invention except for the pattern wall thickness. The exact thickness of the wall is deemed to be a cause effective. It would have been obvious to one having ordinary skill in the art to have determined the optimum value of a cause effective variable such as thickness of the wall through routine experimentation in the absence of

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a showing of criticality in the claimed combined thickness. *In re Boesch*, 205 USPQ 215 (CCPA 1980), *In re Woodruff*, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). One of ordinary skill in the art would have been motivated to change the thickness of the wall depending upon the design they wish to impart in the sheeting.

The term "breakable" is considered to be equivalent to "capable of." It has been held that the recitation that an element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform.

12. Claims 6 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stump et al. (5,835,271) in view of Nilsen et al. (5,657,162) as applied to claims 1-5, 11, 12, 14, 15, 18, 22-27, 30-33, 44, 45, and 47 above, and further in view of Coderre (5,272,562).

The combination of Stump and Nilsen discloses the claims invention except for the substantially rigid polymer material further including a filler.

Coderre discloses a cube-corner retroreflective material comprising pigments in a polymer. The pigments may comprise zinc oxide, zinc sulfide, lithopone, titanium dioxide, etc. See col. 5, lines 11-45.

It would have been obvious to one of ordinary skill in the art at the time of the invention to add pigments to the cube-corner material of Stump as taught by Coderre because it would add a decorative color to the article of Stump.

13. Claims 13 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stump et al. (5,835,271) in view of Nilsen et al. (5,657,162) as applied to claims 1-5, 11, 12, 14, 15, 18, 22-27, 30-33, 44, 45, and 47 above, and further in view of Heenan (4,208,090).



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The combination of Stump and Nilsen discloses the claims invention except for the sheeting further comprising a color coating on at least some of the open faced cube-corner surfaces.

Heenan discloses a reflector structure comprising a reflector body, reflector elements coated with a thin layer of metal, an adhesive coating and a backing member (figure 6B). The reflector element has a cube corner axis about which three reflecting surfaces are symmetrically arranged (col. 4, lines 32-35). The thin metal layer can be aluminum (col. 7, lines 60-62). The reflector body may be formed of clear synthetic organic plastic resin, whereby a white beam of light is reflected thereby both in daylight and at night. However, a color such as red, yellow, blue and the like may be incorporated in the body, thereby to give a colored signal both in daylight and at night. Alternatively, the reflecting surfaces of the body may be colored, thereby to give colored reflections there from. See column 7, lines 3-11.

It would have been obvious to one of ordinary skill in the art at the time of the invention to add a color layer to the open faced structure of Stump and Nilsen as taught by Heenan because it would add a decorative effect or a color contrast to help catch people's attentions.

#### ***ANSWERS TO APPLICANT'S ARGUMENTS***

14. Applicant's arguments filed in paper #15 regarding the 35 U.S.C. 112, 102, and 103 rejections of record

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***Conclusion***

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tung (4,100,625) and Tung (4,004,930) both disclose the inventive concept of two side retroreflective elements cut up into chips and mixed in a polymeric matrix.

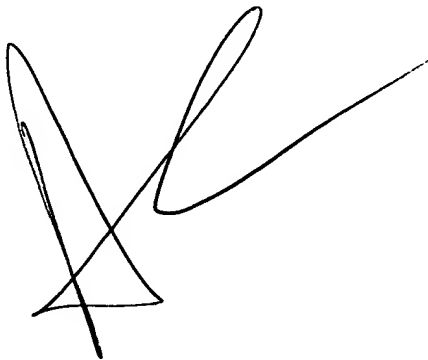
16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia Chevalier whose telephone number is (703) 305-1139. The Examiner can normally be reached on Monday through Thursday from 8:00 a.m. to 5:00 p.m. The Examiner can also be reached on alternate Fridays


If attempts to reach the Examiner are unsuccessful, the Examiner's supervisor, Harold Pyon can be reached by dialing (703) 308-4251. The fax phone number for the organization official non-final papers is (703) 872-9310. The fax number for after final papers is (703) 872-9311.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose phone number is (703) 308-0661.

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A large, stylized handwritten signature in black ink, consisting of a large loop and a long horizontal stroke.

  
HAROLD PYON  
SUPERVISORY PATENT EXAMINER  
1772

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